

AN ANALYSIS OF THE UTILIZATION OF TWO GENERAL HOSPITALS
IN THE PASURUAN REGENCY
(A PRELIMINARY REPORT)

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ABSTRACT

Study ini didasarkan atas adanya dua pendapat yang saling berlawanan, yaitu :

- 1. Bahwa makin banyak tersedia fasilitas2 kesehatan, yang tersebar secara merata dalam satu unit penduduk tertentu makin dapat terpenuhi kebutuhan serta keinginan (need and demand) penduduk tersebut untuk menggunakan fasilitas2 tersebut.*
- 2. Bahwa penilaian tersebut diatas adalah tidak selalu benar karena kenyataan menunjukkan bahwa fasilitas2 kesehatan yang telah tersedia, penggunaannya masih dibawah kemampuan yang sebenarnya (underutilized).*

Semua membuktikan pendapat manakah yang benar, maka telah dilakukan analisa dan penggunaan (th. 1970) dua Rumah Sakit Pemerintah (R.S. Kodya Pasuruan dan R.S. Kabupaten Pasuruan di Bangil) didaerah Kabupaten Pa- p5 suruan, untuk mengetahui apakah kedua fasilitas kesehatan (Rumah Sakit) tersebut telah bekerja penuh sebagaimana diharapkan.

Dari analisa ini dapat disimpulkan bahwa: Di Rumah Sakit Bangil dari 24065 kasus yang memerlukan perawatan di polikliniknya, 1006 kasus memerlukan perawatan khusus dalam rumah sakit. Sedangkan di Rumah Sakit Pasuruan 1.999 dari 7896 kasus yang datang ke poliklinik memerlukan perawatan khusus dalam Rumah Sakit.

Jumlah kasus2 (in & outpatient) yang memerlukan perawatan dan kedua fasilitas kesehatan tersebut, hanya meliputi 31 per 10.000 penduduk kabupaten dan kotamadya Pasuruan (rata2 satu perawatan bagi tiap2 kasus per orang).

Lama hari perawatan rata2 pada kedua Rumah Sakit tersebut adalah 5.61 hari di R.S. Bangil dan 5.75 hari di R.S. Pasuruan. Mengenai penggunaan fasilitas tempat tidur (bed occupancy ratio) dikedua Rumah Sakit tersebut menunjukkan bahwa hanya 38 percent (di R.S. Bangil) dan 31 percent (di R.S. Pasuruan) fasilitas tempat tidurnya yang digunakan.

Selain hal2 yang tersebut diatas, diketahui pula bahwa kebanyakan dari penderita2 yang dirawat dikedua Rumah Sakit (72 percent) berasal dari daerah2 yang berjarak tidak lebih dari 5 kilometer dari Rumah Sakit (figure 2 A dan 2 B).

Jenis2 kasus yang dirawat dikedua Rumah Sakit tersebut adalah hampir bersamaan (tabel I dan II), dimana terutama didapatkan kasus2:

- 1. Golongan Penyakit Infeksi dan Parasit*
 - Enteritis & Diarrhea 50 percent*
 - TBC saluran pernapasan 18 percent*
 - Malaria 10 percent*
- 2. Golongan Penyakit/Komplikasi kehamilan*
 - Kelahiran normal 63 percent*
 - Abortus 20 percent*
- 3. Penyakit yang tidak diketahui sebabnya*
- 4. Penyakit2 akibat kecelakaan, keracunan dan kekerasan*

Dari hasil analisa tersebut diatas telah dibuktikan bahwa R.S. Bangil dan R.S. Pasuruan masih digunakan dibawah kapasitas yang sebenarnya (underutilized).

Hal ini dapat dilihat dari kenyataan2:

- 1. Walaupun jumlah penyakit2 yang mungkin memerlukan perawatan2 khusus dalam Rumah Sakit belum dapat dipastikan, namun melihat keadaan*

penyakit pada umumnya dapat diperkirakan bahwa fasilitas2 yang tersedia belum dipergunakan seperlunya.

2. Kedua Rumah Sakit tersebut hanya dipergunakan oleh penduduk yang bertempat tinggal tidak lebih dari 5 kilometer dari Rumah Sakit.
3. Dari sudut pembiayaan, maka penggunaan fasilitas2 kesehatan dengan tidak/ belum sepenuhnya, merupakan pengeluaran2 yang tidak sesuai.

Studi2 selanjutnya masih perlu dilaksanakan, terutama guna menyelidiki sebab2 daripada penggunaan fasilitas2 kesehatan dibawah kemampuan yang sebenarnya ini.

INTRODUCTION

Health service facilities, whether it is Mother and Child Health Centre, Health Centre or Hospital, can be effective only if they reach the population needs and demand.

It is therefore very useful for the administrator to analyze the utilization of these services as a tool for evaluation, for controlling service activities, but most of all for the planning, improvement and extension of these services.

From the administrative point of view, it could be assumed that the more service facilities per unit population available, the more these services could cover the needs and demands if they are widely and evenly scattered within that population.

However there are views based on observation that even the existing service facilities are still not effectively utilized by the groups of population within the area in accordance with the needs.

These controversial views made it necessary to start with studies on utilization of health service facilities in order to reassess the function and scope of these facilities.

The utilization of health services by the people are determined by a number of variables, such as :

1. The objective need of the people, in the form of diseases requiring services.
2. Preception by the relevant persons that this need exist.
3. Accessibility of services in terms of cost, time and distance.

4. Intervening opportunities, in the form of other competing services available.

5. Quality (effectiveness) of services given.
6. Satisfaction of services given (evaluation by the health service consumers).

Not all of these factors are within the scope of this study. This paper attempts to analyze the utilization of hospital services, obtained from routine data collected in the Pasuruan Regency.

The two hospitals chosen for the study were : Bangil Hospital, with a capacity of 40 beds, and Pasuruan Hospital with a capacity of 100 beds. Both are situated in the Pasuruan Regency which for the past few years is the site of Operational Studies of Health Services carried out by the National Institute of Public Health in Surabaya.

Pasuruan Regency, is an area on the northern coast of East-Java situated about 60 kilometers from Surabaya. It has a population of 959.908 in 1970, covering an area of 1,411.38 square kilometers, which gives a population density of about 680 per square kilometers (5561/Sq.km. in Pasuruan municipality). Location, availability and type of the various health service facilities in the regency can be seen in figure 1.

There are 3 hospitals situated in the Pasuruan Regency. These are the Pasuruan Municipal Hospital with a capacity of 100 beds; the Bangil Regency Hospital with 40 beds; and the Grati (Rural) Hospital with 17 beds.

The physician population ratio in 1970 was one physician for 56,465 persons. There were 17 physicians : - 2 private practitioners, one military doctor, one doctor working for the Municipal Health Service of Pasuruan and 10 doctors working for the Regency Health Services.

Objective of the study

This is a preliminary study within the framework of the "Hospital Care Studies" (an analysis of utilization of regency hospitals in Indonesia), to be carried out in the financial year 1972 - 1973. The objective of the preliminary study is to find out what data are available in the two hospitals in the regency level, and how these data are recorded.

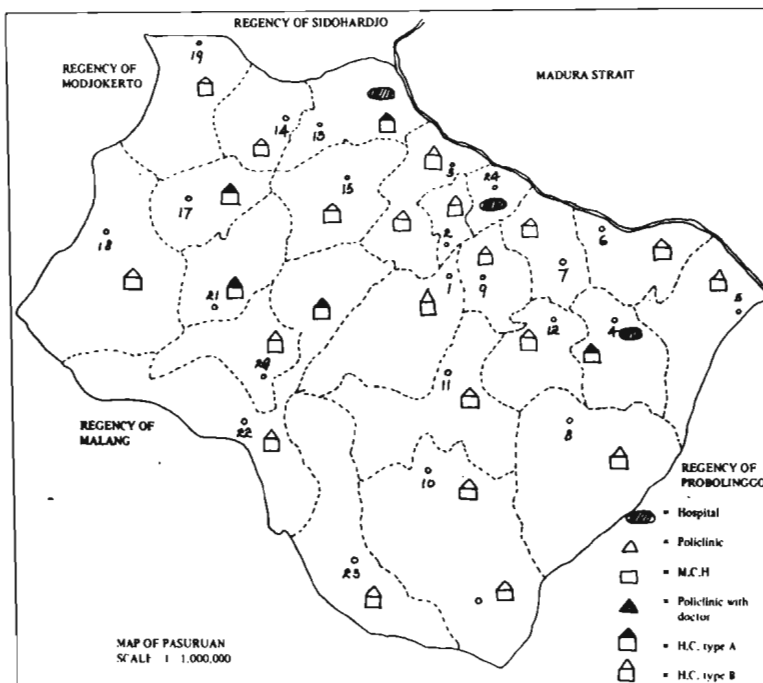


Figure 1

PASURUAN MUNICIPALITY AND DISTRICTS/
KETAMATANAN PASURUAN REGENCY

1. Kejayan
2. Pohjentrek
3. Kraton
4. Grati
5. Ngiling
6. Lekok
7. Rejoso
8. Lumbang
9. Gondang
10. Puspoh
11. Pasrepan
12. Winoengan
13. Bangil
14. Beji
15. Rotoang
16. Konorejo
17. Pandaan
18. Prigen
19. Gempol
20. Purworejo (Purworejo)
21. Sukorejo
22. Purwodadi
23. Tutur (Nongkojajar)
24. Pasuruan

From data obtained it was then analyzed; the utilization of these hospitals according to disease treated, age, sex, socio-economic status of the patients, average length of stay and the bed occupancy rate.

A separate investigation was carried out by two economists to study the cost estimate of running and maintaining a regency level hospital.

METHOD

Data for this survey were collected from the in-patients registration book, and also from patients records admitted to these two hospitals during the year 1970 (retrospective study).

The data were then transferred by two health controllers to specially designed forms for this study.

The register number, age, sex, distance from hospitals, date of entry, date of discharge, diagnosis, discharge status and possible referrals were recorded. As for the data concerning out-patient services, only the number of patients (visits) were counted from the out-patient register book.

Sorting of all the data was done manually. The coding was carried out by 4 doctors of the Epidemiology and Medical Statistics Depart-

ment of the National Institute of Public Health. Final analysis was the responsibility of the authors.

RESULTS

The bed/population ratio for the whole regency of Pasuruan was 0.16/1000. Omitting the Grati Hospital (17 beds), the bed/population ratio turned out to be 0.15/1000 population, which was below the bed/population ratio for East-Java (0.49/1000, 1971) and Indonesia (0.52/1000, 1967).

Total services rendered during 1970 by the two hospitals were in Bangil Hospital 24,065 services (1,006 were in patients); and in Pasuruan Hospital 7,986 services of which 1,999 were in patients.

Unfortunately, there was no special recording for the out-patients. Likewise it was difficult to find out whether one person made several visits to the out-patient department. No data could be obtained from the out patient register book about the proportion of patients from the out-patient department who were admitted to the hospital.

From studying the names registered in the out-patient register, it was concluded that,

on the average, one service was given to every person at the in-patient and out-patient departments. All services (in - and out-patient) given, covered only about 3.34 percent of the population of the Pasuruan Regency.

Analysis of the admissions per 10,000

Table 1. UTILIZATION OF THE BANGIL HOSPITAL 1970

| Diseases category | | Male | Female | Total | Percent |
|-------------------|--|----------|--------|-------|---------|
| 1 | Complications of Pregnance, child birth and the Puerperium | XI 0 | 298 | 298 | 29.60 |
| 2. | Infective and Parasitic Diseases | I 163 | 91 | 254 | 25.22 |
| 3. | Symptoms and ill-defined conditions | VI 103 | 43 | 146 | 14.59 |
| 4. | Accidents, Poisoning and Violence | XVII 103 | 44 | 147 | 14.59 |
| 5. | Diseases of the Respiratory system | VIII 30 | 10 | 40 | 3.98 |
| 6. | Diseases of the digestive system | IX 12 | 18 | 30 | 2.98 |
| 7. | Diseases of the Genito urinary system | X 10 | 14 | 24 | 2.38 |
| 8. | Diseases of the skin and Subcutaneous Tissue | XII 7 | 6 | 13 | 1.29 |
| 9. | Diseases of the Musculo skeletal system and connective Tissue. | XIII 12 | 1 | 13 | 1.29 |
| 10. | Supplementary classifications | XVIII 0 | 11 | 11 | 1.09 |
| 11. | Diseases of the Nervous system and sense Organs. | VI 4 | 6 | 10 | 0.99 |
| 12. | Endocrine, Nutritional and Metabolio Diseases | III 4 | 3 | 7 | 0.70 |
| 13. | Neoplasms | II 0 | 4 | 4 | 0.40 |
| 14. | Mental disorder | V 3 | 1 | 4 | 0.40 |
| 15. | Diseases of the Blood and Blood forming Organs. | IV 1 | 1 | 2 | 0.20 |
| 16. | Diseases of the Circulatory system | VII 2 | 0 | 2 | 0.20 |
| 17. | Certain cause of Perinatal Morbidity and Mortality | XV 0 | 1 | 1 | 0.99 |
| 18. | Congenital Anomalies | XIV | | | |
| TOTAL | | 454 | 552 | 1006 | 100.00 |

population showed that for the two hospitals together it was about 31 per 10,000 population.

The morbidity pattern of patients hospitalized was very similar in the two hospitals under study (table I and II),

especially for the top four diseases treated in these hospitals.

The International Classification of Diseases was used for compilation and grouping diseases.

The four most common conditions which needed hospitalization were: Infectious diseases; Complications of pregnancy child birth and puerperium; Symptoms and ill defined conditions; and Accidents, poisoning and violence. Further breakdown of the two most common conditions as mentioned in table I and II, showed that the most common conditions in the Infectious and Parasitic disease group were:

- Enteritis & Diarrheae diseases (50 percent).
- Tuberculosis of the resp, system (18 percent).
- Malaria (10 percent).

- Normal pregnancy (63 percent).
- Abortion not specified as induced or spontaneous (20 percent).

Total patient days in 1970 were 5,654 patient-days in Bangil Hospital (1,006 admission); and 11,486 patient-days in Pasuruan Hospitals (1,999 admissions).

The bed-occupancy ratio were 38 percent for Bangil Hospital (average number of in-patient = 16/day) and 31 percent for Pasuruan Hospital (average number of in-patient = 32/day).

In general the average length of stay were nearly the same; respectively 5.61 days for Bangil and 5.75 days for Pasuruan Hospital.

From the analysis of in-patients in 1970, it was explicitly striking that about 72 percent of patients admitted in those two hospitals came from a radius of not more than 5 kilo-

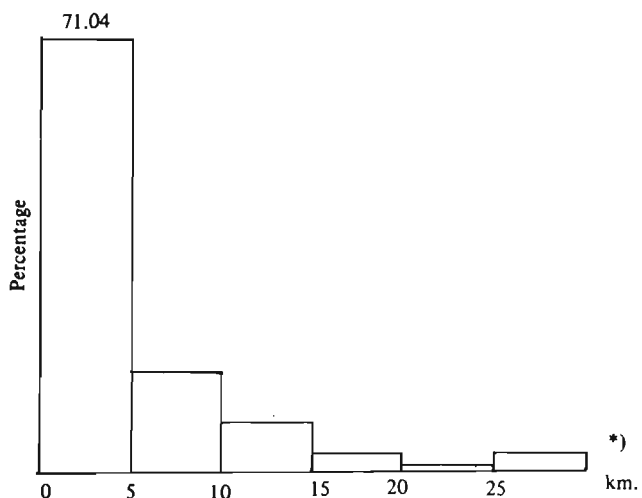
In the Complication of Pregnancy, Childbirth and Puerperium group the highest frequency

Table II

UTILIZATION OF THE PASURUAN HOSPITAL 1970 in patient's morbidity

| Diseases category | | Male | Female | Total | Percent |
|-------------------|---|------|--------|-------|---------|
| 1. | Infections Parasitic Diseases | 333 | 181 | 514 | 25,72 |
| 2 | Complications of Pregnancy child birth, and the Puerperium | — | 501 | 501 | 25,06 |
| 3 | Accidents, Poisonings and Violence | 249 | 65 | 314 | 15,71 |
| 4 | Symptoms and Ill-defined conditions | 132 | 65 | 197 | 9,86 |
| 5 | Diseases of the REspiratory system | 74 | 53 | 127 | 6,35 |
| 6 | Diseases of the Digestive system | 27 | 48 | 75 | 3,75 |
| 7 | Diseases of the Genite urinary system | 39 | 27 | 66 | 3,30 |
| 8 | Diseases of the circulatory system | 17 | 14 | 31 | 1,55 |
| 9 | Mental Disorders | 17 | 14 | 31 | 1,55 |
| 10 | Diseases of the nervous system and sense Organs. | 13 | 15 | 28 | 1,4 |
| 11 | N e o p l a s m s | 5 | 20 | 25 | 1,25 |
| 12 | Diseases of the skin and Sabcutaneous Tissues | 17 | 5 | 22 | 1,10 |
| 13 | Diseases of the Muscule skeletal system and cannective Tissue | 9 | 11 | 20 | 1,00 |
| 14 | Endocrine, Nutritional and Metabolic Disease | 9 | 9 | 18 | 0,90 |
| 15 | Supplementary Classifications | — | 13 | 13 | 0,65 |
| 16 | Diseases of the Blood and Blood forming Organs | 2 | 1 | 3 | 0,15 |
| 17 | Gengenital Anòmalies | — | — | — | — |
| 18 | Certain causes of Perinatal Morbidity and Mortality | — | — | — | — |
| TOTAL | | 593 | 1046 | 1999 | 100.00 |

Figure 2a. UTILIZATION OF PASURUAN HOSPITAL 1970
number of hospitalization in relation to the distance from hospital

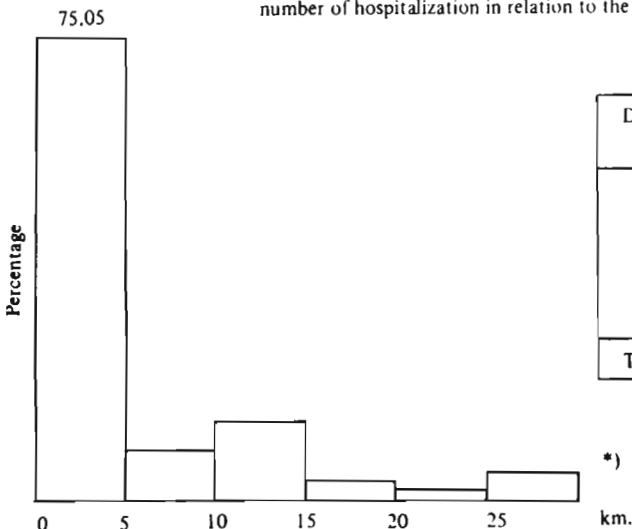


| Distance in km. | Number of patients | % |
|-----------------|--------------------|--------|
| 0-5 | 1420 | 71.04 |
| 5-10 | 302 | 15.11 |
| 10-15 | 165 | 8.25 |
| 15-20 | 51 | 2.55 |
| 20-25 | 10 | 0.50 |
| 25+ | 51 | 2.55 |
| Total | 1999 | 100.00 |

*)

km.

Figure 26. UTILIZATION OF BANGIL HOSPITAL AND PASURUAN HOSPITAL IN RELATION TO THE DISTANCE FROM HOSPITAL



| Distance in km. | Number of patients | % |
|-----------------|--------------------|--------|
| 0-5 | 755 | 75.05 |
| 5-10 | 71 | 7.06 |
| 10-15 | 122 | 12.13 |
| 15-20 | 20 | 1.99 |
| 20-25 | 16 | 1.59 |
| 25+ | 22 | 2.18 |
| Total | 1006 | 100.00 |

*) Traffic accidents patients, always states their area of origin (mostly from outside Pasuruan regency).
(The 2 hospitals are situated along the main highway, connecting Surabaya and the Eastern part of East Java).

Further analysis was conducted regarding in-patients during January to March 1970; to see the relationship between the various diseases needing hospitalization and determinat of distance to the hospital. From this analysis it was concluded that the further the distance from the hospital, the lower were the number of admissions. This was valid for all disease categories mentioned in table I and II.

Analysis about discharge status points out that approximately 83 percent patients were discharged as cured and about 6 percent of in-patients in each hospital were referred to a higher echelon hospital, either to Malang or Surabaya.

Discussions and Conclusions

The Regency/Municipal hospital can be defined in general as an institution for in-patients care which has at least one physician.

The physician in-charge is sometimes also the physician incharge of all the health service activities in the region. Hence it can be understood that time left for the in-patient services of this hospital is limited. This fact, and the fact that facilities available at the regency level hospital are usually minimal makes it more difficult to give a proper in-

patient care to persons admitted to these hospitals.

The physician/population ratio for the Pasuruan Regency (1970) can be regarded as very low (one physician for 56,465 persons).

Highest admission rate in both hospitals are infectious and Parasitic Diseases. These phenomena, and other information about diseases treated, might give some reflection on diseases occurring in the community.

The number of admissions in Bangil and Pasuruan Hospitals turned out to be respectively 1,006 and 1,999 in the year 1970, while the average length of stay were 5.61 and 5.75 days.

Bed occupancy ratio was definitely low in these two hospitals (Bangil: 38 percent; Pasuruan : 31 percent).

Both hospitals were predominantly serving the population from the immediate vicinity, since about 72 percent (in both hospitals) patients resided within 5 kilometer from the hospitals.

SUMMARY

A retrospective study, about the utilization of two hospitals in the Pasuruan Regency

disease pattern treated in those hospitals, the outcome, and distance from hospital in relation to admissions and occupancy ratio.

The following were observed :

1. Four most common groups of diseases that needed admission were :
Infectious and Parasitic Diseases Complications of pregnancy child birth and puerperium (of which normal pregnancy and abortion were highest); Symptoms and ill defined conditions; Accidents, poisoning and violence.
2. The length of stay in these two hospitals were found to be similar, about - 5.61 days and 5.75 days.
3. Bed occupancy rate in two hospitals was definitely low; 38 percent in Bangil Hospital and 31 percent in Pasuruan Hospital.
4. The two hospitals were mostly serving people from the vicinity (72 percent of patients came from area within the 5 kilometers radius from these hospitals).
5. Bed-population ratio of the two hospitals together was found to be low 0.15/1000 population.
6. These hospitals were working under certain constraints which should be analyzed further.

From these findings it was concluded that these two hospitals were under-utilized. This supports the view that existing service facilities are still not effectively utilized by the groups of population within the area in accordance with the needs. Although this paper refers to the results of study of two hospitals data being collected in more hospitals (not yet finalized) show the same pattern.

The problem of under utilization could be looked upon from the existing diseases within the community needing special care in the hospital. Under utilization could also be assessed by expenditure viz-o-viz capacity which exceeds existing need/demand for hospitalization within the community. In this particular case study, the existing capacity is not effectively utilized by the population needing special hospital care. Further studies will be carried out to analyze the specific causes of under utilization.

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